

CLAIMS

What is claimed is:

1. A vehicle dump body elevation device comprising:

at least one hinge assembly for attaching a dump body to a vehicle frame, the
5 hinge assembly having a lowered position wherein the dump body is substantially
horizontal and a raised position wherein a front portion of the dump body is elevated
higher than a rear portion of the dump body, and wherein the rear portion of the dump
body is elevated clear of a rear bumper mounted on the vehicle frame;

wherein the hinge assembly moves both the front and the rear portions of the
10 dump body upwardly while pivoting the dump body to the raised position; and

at least one hoist having a lower end pivotally attached to the vehicle frame and
an upper end pivotally attached to the dump body.

2. A vehicle dump body elevation device according to claim 1, wherein the hinge
15 assembly further comprises:

a front link member pivotally mounted to the dump body;

a main link member having a first end pivotally attached to the front link
member, a second end pivotally mounted to a vehicle frame, and an attachment means
disposed therebetween for pivotal attachment to a rear link member;

20 the rear link member having a first end attached to a center linking member,
and a second end pivotally mounted to the dump body; and

wherein an end of the center linking member comprises a mounting means for
attachment to the vehicle frame.

25 3. A vehicle dump body elevation device according to claim 2, wherein the rear
link member is pivotally attached to the attachment means of the main link
member at about the center of the rear link member.

4. A vehicle dump body elevation device according to claim 3, wherein the attachment means is a pivot mount fixedly attached to the main link member.
- 5 5. A vehicle dump body elevation device according to claim 2, wherein at least one hoist is disposed between a first hinge assembly and a second hinge assembly.
6. A vehicle dump body elevation device according to claim 5, wherein the front link members are pivotally mounted to an underside of the dump body
- 10 6. A vehicle dump body elevation device according to claim 5, wherein the front link members are pivotally mounted to an underside of the dump body
7. A vehicle dump body elevation device according to claim 6, wherein at least one torsion bar is disposed between and attached to the first hinge assembly and the second hinge assembly.
8. A vehicle dump body elevation device according to claim 7, wherein the center linking member comprises a first end pivotally attached to the rear link member and a second end pivotally mounted to the vehicle frame.
- 15 8. A vehicle dump body elevation device according to claim 7, wherein the center linking member comprises a first end pivotally attached to the rear link member and a second end pivotally mounted to the vehicle frame.
9. A vehicle dump body elevation device according to claim 1, wherein the hoist comprises a scissor hoist mechanism.
- 20 9. A vehicle dump body elevation device according to claim 1, wherein the hoist comprises a scissor hoist mechanism.
10. A vehicle dump body elevation device according to claim 9, wherein the scissor hoist mechanism has a range of motion up to about 180 degrees.

11. A vehicle dump body elevation device according to claim 10, wherein the scissor hoist mechanism comprises:

a channeled hinge having a first upwardly extending end and a second upwardly extending end defining a space therebetween, wherein each upwardly extending end has an upper pivot pin and a lower pivot pin extending outwardly therefrom;

two lower scissor arms, each comprising a first end pivotally attached to a lower pivot pin and a second end pivotally attached to the vehicle frame;

two upper scissor arms, each comprising a first end pivotally attached to an upper pivot pin and a second end pivotally attached to the dump body;

a lifting means for moving the scissor hoist mechanism from a closed position to an open position, wherein the lifting means is disposed between the lower scissor arms and the upper scissor arms, and wherein the lifting means comprises a base end pivotally attached to the lower scissor arms and an extending end pivotally attached to the upper scissor arms.

12. A vehicle dump body elevation device according to claim 11, wherein each second end of each upper scissor arm is pivotally attached to the underside of the dump body.

13. A vehicle dump body elevation device according to claim 12, wherein at least one lower pivot pin extends beyond the corresponding lower scissor arm.

14. A vehicle dump body elevation device according to claim 13, wherein at least one upper scissor arm comprises a pivot block means for selectively pivoting the two upper scissor arms and the two lower scissor arms about the upper pivot pins and the lower pivot pins.

15. A vehicle dump body elevation device according to claim 14, wherein the lifting means has an extended position wherein an extending member is disposed within the space defined by the upwardly extending ends of the channeled hinge .

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16. A vehicle dump body elevation device according to claim 15, wherein the extended position of the lifting means orients the scissor arms at about 180 degrees.

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17. A vehicle dump body elevation device according to claim 16, wherein the scissor hoist mechanism further comprises at least one safety pin for securing the hoist in the open position.

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18. A vehicle dump body elevation device according to claim 16, wherein the lifting means is a hydraulic cylinder.

19. A vehicle dump body elevation device according to claim 18, wherein the hydraulic cylinder is a single acting hydraulic cylinder.

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20. A vehicle dump body elevation device according to claim 19, wherein the hydraulic cylinder comprises a housing having an air vent disposed therein, and a low pressure hose having a first end attached to the air vent, wherein the hydraulic cylinder is vented through the low pressure hose, and outward through a second end of the low pressure hose into a reservoir.

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21. A kit for modifying a vehicle to function as a dump truck, the kit comprising:
at least one hinge assembly to move a dump body between a lowered position,
wherein the dump body is substantially horizontal, and a raised position, wherein a
front portion of the dump body is elevated higher than a rear portion of the dump body,
5 and wherein the rear portion of the dump body is elevated clear of a rear bumper
mounted on a vehicle frame;

wherein the hinge assembly moves both the front and the rear portions of the
dump body upwardly, while pivoting the dump body to the angled position; and

at least one hoist having a first means for pivotal attachment to the vehicle
10 frame and a second means for pivotal attachment to the dump body.

22. A kit according to claim 21, wherein the hinge assembly comprises:
a front link member comprising a mounting means for pivotal attachment to
the dump body;

15 a main link member having a first end pivotally attached to the front link
member, a second end having a mounting means for pivotal mounting to a vehicle
frame, and an attachment means disposed therebetween for pivotal attachment to a rear
link member;

the rear link member having a first end attached to a center linking member,
20 and a second end comprising a mounting means for pivotal attachment to the dump
body; and

wherein an end of the center linking member comprises a mounting means for
attachment to the vehicle frame.

25 23. A vehicle dump body elevation device according to claim 22, wherein the rear
link member is pivotally attached to the attachment means of the main link
member at about the center of the rear link member.

24. A vehicle dump body elevation device according to claim 23 wherein the attachment means is a pivot mount fixedly attached to the main link.

5 25. A kit according to claim 22, wherein the kit further comprises at least one hoist disposed between a first hinge assembly and a second hinge assembly.

26. A kit according to claim 25, wherein the kit further comprises at least one torsion bar disposed between and attached to the first hinge assembly and the second hinge assembly.

10 27. A kit according to claim 26, wherein each front link members further comprises a mounting means for pivotal attachment to an underside of the dump body.

15 28. A kit according to claim 27, wherein the center linking member is pivotally attached to the rear link member and further comprises a pivotal mounting means for attachment to the vehicle frame

29. A kit according to claim 21, wherein the hoist is a scissor hoist mechanism.

20 30. A kit according to claim 29, wherein the scissor hoist mechanism has a range of motion up to about 180 degrees.

31. A kit according to claim 30, wherein the scissor hoist mechanism comprises:
a channeled hinge having a first upwardly extending end and a second upwardly
extending end defining a space therebetween, wherein each upwardly extending end
has an upper pivot pin and a lower pivot pin extending outwardly therefrom;

5 two lower scissor arms, each comprising a first end pivotally attached to a
lower pivot pin and a second end having a mounting means for pivotal attachment to
the vehicle frame;

two upper scissor arms, each comprising a first end pivotally attached to an
upper pivot pin and a second end having a mounting means for pivotal attachment to
10 the dump body; and

a lifting means for moving the scissor hoist mechanism from a closed position
to an open position, wherein the lifting means is disposed between the lower scissor
arms and the upper scissor arms, the lifting means having a base end pivotally attached
to the lower scissor arms and an extending end pivotally attached to the upper scissor
15 arms.

32. A kit according to claim 31, wherein the each second end of the each upper
scissor arm has a mounting means for pivotal attachment to the underside of
the dump body.

20 33. A kit according to claim 32, wherein the lifting means has an extended position
wherein an extending member is disposed within the space defined by the
upwardly extending ends of the channeled hinge .

25 34. A kit according to claim 33, wherein the extended position of the lifting means
orients the scissor arms at about 180 degrees.

35. A kit according to claim 34, wherein the scissor hoist mechanism further comprises at least one safety pin for securing the hoist in the open position

36. A kit according to claim 34, wherein the lifting means is a hydraulic cylinder.

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37. A kit according to claim 36, wherein the hydraulic cylinder is a single acting hydraulic cylinder.

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38. A kit according to claim 37, wherein the hydraulic cylinder comprises a housing having an air vent disposed therein, and a low pressure hose having a first end attached to the air vent, wherein the hydraulic cylinder is vented through the low pressure hose, and outward through a second end of the low pressure hose into a reservoir.

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39. A method of converting a vehicle from a fixed bed vehicle to a dump truck, the method comprising;

a) removing a fixed bed from a vehicle;

b) providing a vehicle dump body elevation device comprising at least one hinge assembly to move a dump body between a lowered position wherein the dump body is substantially horizontal, and a raised position wherein a front portion of the dump body is elevated higher than a rear portion of the dump body, and wherein the rear portion of the dump body is elevated clear of a rear bumper mounted on the vehicle frame;

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wherein the hinge assembly moves both the front and the rear portions of the dump body upwardly, while pivoting the dump body to the raised position; and

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at least one hoist having a first means for pivotal attachment to a vehicle frame and a second means for pivotal attachment to the dump body;

c) mounting the hinge assembly to the vehicle frame;

- d) mounting the hoist to the vehicle frame; and
- e) mounting the hinge assembly and the hoist to the dump body.

5 40. The method according to claim 39, wherein the hinge assembly is pivotally
 mounted to the vehicle frame.

41. The method according to claim 40, wherein the hoist is pivotally mounted to
 the vehicle frame.

10 42. The method according to claim 41, wherein the hinge assembly and the hoist
 are pivotally mounted to the dump body.

15 43. The method according to claim 42, wherein the hinge assembly and the hoist
 are pivotally mounted to the underside of the dump body.